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RESEARCH ARTICLE

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Abstract: To succeed in the modern world, members of society must be adept at keeping pace with myriad, often unpredictable circumstances. As such, it is crucial that creative skills and thinking are cultivated at an early age. With these concerns in mind, we conducted a confirmatory factor analysis (CFA) regarding the creative administration by Thai administrators on early childhood education. Data were gathered through questionnaires given to 324 administrators and teachers working with students in early childhood education who were selected through a multi-stage random sampling technique. The data collection tool was a questionnaire with an Index of Item-Objective Congruence (IOC) of 0.60–1.00. Descriptive statistics were used including the mean (and standard deviation (S.D.). The findings from the CFA of the six significant factors for Thai administrators' creative administration of early childhood education, ranked in most important to least important, were 1) creative measurement and evaluation (0.55), 2) creative resources and learning atmosphere development (0.50), 3) creative media and technology development (0.50), 4) creative research development (0.47), 5) creative learning process development (0.44), and 6) creative curriculum development at the early childhood level (0.34). All the factors corresponded with the empirical data and the results of this research can be applied by administrators of early childhood schools to improve the quality of education by recognizing the need to focus on creativity.

Keywords: academic administration, creativity, early childhood education, Thailand

In the preparation of people to become quality citizens, education is an essential element, as people need to be able to adapt and solve a variety of problems in continually changing situations. These quality citizens must also possess the capability to initiate for themselves, their families, their community and their nation, developments and advancements on the bases of understanding, reason, accuracy, goodness, and suitability. In a modern era, the ability of the Thai educational system to adjust and keep pace with various situations and innovations is becoming increasingly important so that there can be the adequate development of Thai people as quality citizens in all dimensions, most of all in creativity (Ministry of Education, 2011). This is consistent with Brende (2015), who stated that there is an indisputable and direct link between quality education and economic and social development for both countries and individuals.

Education must be integrated with both science and art, as life and technology come together in harmony to create multi-faceted people in every dimension. This thereby necessitates various forms of education that are consistent and responsive to the many differing needs of various learners.

Therefore, academic administration is an essential task because it deals with all activities that develop the efficiency of the teaching and learning process in order to bring the best benefits to learners. Administrators and those involved in academic administration need to realize the importance of academic quality development to improve the learners' quality to meet not only national but also global standards. Thailand's competitiveness in 2018 was ranked 30th in the world (Theparat, 2018), and 3rd among the 10 nations forming the Association of Southeast Asian Nations (ASEAN). Concerning basic education, Thailand is ranked 7th in ASEAN (Schwab, 2015).

According to Koster (2001), early childhood is a critical time for the development of creativity. Also, promoting creativity and imagination at this stage is a key element in children growing up to be creative adults (Duffy, 1998). According to Thailand's National Education Plan for 2009–2016, creativity has been identified as an important feature in highly competent performers (Office of the Council of Education, 2010). This is in correlation with Thailand's long-term 2007–2016 policy and strategy for early childhood development of children up to five years old, which established learner-centered guidelines and measures focusing on creativity, initiation, and imagination to empower children and facilitate their development (Office of the Council of Education, 2007). Management of early childhood education is the starting point of all further education, as it is focused on developing children based on parenting, promoting learning processes, and corresponding with nature in the development of individuals that have different characteristics (Office of the Basic Education Commission, 2011).

It has also been suggested that motivation is among the most important and widely studied concepts in educational research as it is generally recognized to have a strong connection with academic outcomes about learning and achievement (Fortier, Vallerand, & Guay, 1995). Furthermore, to study what academic motivation is, various theoretical approaches have been adopted, including the expectancy-value model (EVM), attribution theory, goal orientation theory (GOT), and self-determination theory (SDT). Among these, the SDT model of academic motivation by Deci and Ryan (2008) has been regarded as a sound framework for explaining differences among students regarding learning strategies, persistence, and performance (Vallerand et al., 1992). SDT has also be used for linking motivation to educational classroom environments (Vansteenkiste, Lens, & Deci, 2006).

Recent conceptualizations of SDT propose three types of motivational constructs, which include autonomous motivation, controlled motivation, and amotivation. Autonomous motivation refers to active and self-endorsed engagement in activities having both intrinsic motivation and well-internalized forms of extrinsic motivation. Additionally, controlled motivation consists of both external regulation, such as rewards and punishment and interjected regulation, in which a partial internalization has occurred caused by the desire for approval, avoidance of shame, and self-esteem. Finally, amotivation denotes the absence of intention and motivation (Deci & Ryan, 2008).

The SDT model has also generated a large amount of educational research across diverse cultures (Vallerand et al., 1992). However, in a study conducted in the United States among college students, when females were compared to males, females had a higher level of overall motivation, as well as intrinsic and extrinsic motivation than their male classmates (Brouse, Basch, LeBlanc, McKnight, & Lei, 2010).

Schunk and Pajares (2002) also discussed academic self-efficacy and defined it as a student's perception regarding competence in learning and performing academic tasks. It must be noted that academic self-efficacy is similar to, but distinct from, academic self-concept, which refers to an individual's knowledge and perceptions about themselves in achievement situations (Bong & Skaalvik, 2003).

Ferla, Valcke, and Cai (2009) also investigated academic self-efficacy and academic self-concept, and determined that the two were correlated, but conceptually and empirically separate psychological constructs. The research also revealed that academic self-efficacy was a stronger predictor of academic achievement. However, academic self-concept was shown to have a greater impact on motivational variables. Finally, Zajacova, Lynch, and Espenshade (2005), in an investigation of first-year college

students, determined that academic self-efficacy was a better predictor of academic success when compared to stress. Attitudes are defined as sets of beliefs that are held about an "attitude object," which can be a person, thing, event, or issue. As teacher attitudes are considered important concerning their performance (Rimm-Kaufman & Sawyer, 2004), teacher attitudes have been examined in both pre-service and in-service teachers.

Multiple studies have also examined teacher attitudes across multiple disciplines. These include science (Murphy & Smith, 2012; Sundberg & Ottander, 2013) and technology (Abdulrasool & Mishra, 2010; Johnson & Howell, 2005), but there are a limited number of studies examining attitudes directly related to teaching itself or to the teaching profession.

However, the above studies indicate that regardless of their teaching subject, both pre-service and in-service teachers have generally positive attitudes toward their profession. This is consistent with Doğan and Çoban (2009) who examined the relationships between attitudes toward teaching and levels of anxiety, and found that teachers who had positive attitudes related to teaching had more positive attitudes and lower levels of anxiety.

The motivations, self-perceptions, and attitudes of teachers shape their approach to teach their pupils creatively and in turn how this approach generates creative graduates. Consequently, this can inform the decisions and practices of administrators in academic administration leading to effective management which could then be applied in schools for young children.

Research Objectives

The following are the study's objectives:

1) Study the factors of creative academic administration for early childhood education for schools under the Office of the Basic Education Commission (OBEC) in Thailand by using a CFA to analyze construct validity, and

2) Develop the confirmation factors and examine the congruence of the model for creative academic administration for early childhood education.

Conceptual Framework

A conceptual framework was established to identify factors for creative academic administration based on some academic administration concepts. High-quality academic institutions consist of academic administration that gives importance to the following areas: 1) academic focus, 2) achievement, 3) quality curriculum and learning opportunities, 4) school environment, 5) classroom atmosphere, 6) participation of parents, 7) assessment potential, 8) effective use of time in learning, 9) teaching and classroom management, 10) development of teaching and learning management, 11) independent learning, and 12) provision of feedback (Hoy & Miskel, 2001).

Furthermore, Austin and Reynolds (1990) suggested that for an institution to be competent, it must consist of strong academic administration in the following: 1) arrangement of curriculum and teaching, 2) personnel development, 3) time management, 4) academic excellence, 5) parental involvement and support, and 6) joint planning. According to Kimbrough and Nunnery (1998), there are six factors for creative academic administration. These include 1) establishing clear policies and principles, 2) establishing educational aims, 3) organizing teaching and learning systems consistent with organizational goals, 4) organizing teaching and learning, 5) evaluation of results, and finally, 6) providing resources to support teaching and learning.

Creativity is a multi-faceted brain capability, also known as divergent thinking, which consists of initiative, maneuverability, flexibility, clarity, and synthesis (Phanmanee, 2014). Creativity can also include imagination, ideational fluency, flexibility, originality, and elaboration (McHenry & Shouksmith, 1970; Susoarat, 2013). Torrance (1972) explained that creativity is all about the ability to create new models from past experiences. The process consists of 1) discovery of facts (fact-finding), 2) discovery of problems (problem-finding), 3) discovery of ideas (idea-finding), 4) discovering the answer (solution-finding), and 5) acceptance of discovery (acceptance-finding). Furthermore, Isaksen, Dorval, and Treffinger (2011) defined characteristics for creative problem solving as consisting of flexibility, imagination, and independence.

From the above, factors for creative academic administration should, therefore, include 1) flexibility,

2) vision, 3) imagination, 4) motivation, and 5) new approaches to problem-solving.

Methods

The population for this research was the 5,424 administrators and teachers working in the early childhood level in schools under OBEC in Thailand. The sample group in this research was selected using multi-stage random sampling and consisted of 350 administrators and teachers responsible for academic affairs at the early childhood level. The sample size was determined using principles from Hair, Black, Barbin, Anderson, and Tatham (2010), which were also used to choose the samples.

The variables in the research consisted of 1) creative curriculum development, 2) creative learning process development, 3) creative research development, 4) creative media and technology development, 5) creative resources and learning atmosphere development, and 6) creative measurement and evaluation at the early childhood level.

The study used a closed-ended, 5-level rating scale questionnaire as its research tool, with each item having an index of item-objective congruence (IOC) of 0.60–1.00. Additionally, the questionnaire contained two parts. Part 1 collected the general information of the respondents. Part 2 emphasized the perspectives of the respondents concerning the factors enhancing the success of creative academic administration at the early childhood level. The questionnaire's six primary factors had a consistency index between 0.60–1.00. Reliability was assessed by use of Cronbach's alpha coefficient which consisted of 1) creative curriculum development (0.868), 2) creative learning process development (0.864), 3) creative research development (0.933), 4) creative media and technology development (0.890), 5) creative resources and learning atmosphere development (0.93), and 6) creative measurement and evaluation at the early childhood level (0.920).

Survey administration was conducted by use of the Thai mail, with a total of 350 questionnaires sent to schools under OBEC jurisdiction as determined by the sample selection. A total of 324 questionnaires (92.57%) were received back from respondents, and data analysis was done using descriptive statistics including mean, standard deviation, and percentage. A CFA was used to examine the congruence of the factors for the creative academic administration of

early childhood level for schools under the OBEC with the empirical data.

Results

The results of the data analysis were divided into the following categories: 1) creative curriculum development, 2) creative learning process development, 3) creative research development, 4) creative media and technology development, 5) creative resources and learning atmosphere development, and 6) creative measurement and evaluation at the early childhood level. Each variable analysis was conducted using the mean (, standard deviation (S.D.), and the coefficient of variation (CV).

Table 1 shows the results from the CFA concerning Thai administrators' creative curriculum development in early childhood education. From it, the five main elements and 16 variables had factor loading values between 0.37–0.61 and their reliability (R^2) was between 0.38–0.86. The model corresponds with the empirical data, considering that $\chi 2 = 87.97$, df = 70, p-value= 0.072, RMSEA = 0.028, GFI = 0.97, AGFI = 0.94, RMR = 0.024, and NFI = 0.9.

The results from the CFA for creative learning process development in early childhood education are shown in Table 2, which revealed that all five main elements and the 14 observed variables had factor loading values between 0.40–0.59 and their reliability (R^2) was between 0.52–0.79. Therefore, the model was determined to be consistent with the empirical data and was further based on the statistical values of $\chi 2 = 66.92$, df = 50, p-value = 0.055, RMSEA = 0.032, GFI = 0.97, AGFI = 0.94, RMR = 0.020, and NFI = 0.99.

The results from the CFA for creative research development in early childhood education are shown in Table 3, which shows that all five main elements and the 20 observed variables had factor loading values between 0.48–0.61 and their reliability (R^2) was between 0.56–0.79. The model is congruent with the empirical data based on the statistical values of $\chi 2 = 125.14$, df = 102, p-value= 0.060, RMSEA = 0.027, GFI = 0.96, AGFI = 0.92, RMR = 0.019, and NFI = 1.00.

The results from CFA for creative media and technology development in early childhood education are shown in Table 4, which shows that factor loading values of all five main elements and their 17 observed

Table 1

CFA of the Model for Creative Curriculum Development

Course	α	CR	AVE	Observed Variables	loading	r^2
Flexibility	0.86	0.31	0.19	Promoting the development of a variety of curriculum (a1)	0.39	0.38
				Allowing teachers to participate in curriculum planning (a2).	0.47	0.59
Vision	0.86	0.36	0.16	Make early and clear preschool courses possible (a3).	0.43	0.52
				Analyze situations for determine course clarity (a4).	0.39	0.44
				Having a vision in seeking new ways to build curriculum development goals (a5).	0.37	0.41
Imagination	0.87	0.42	0.20	New concepts in curriculum development meet the needs of teachers, parents, community (a6).	0.44	0.48
				Have credible sources for course development (a7).	0.44	0.53
				Management is friendly with the co-workers, creating a climate of empowerment (a8).	0.44	0.59
Motivation	0.86	0.51	0.18	Executives bring knowledge to create a creative network (a9).	0.41	0.53
				Management consulting with colleagues (a10).	0.45	0.58
				Staff are aware of their work to achieve their goals (a11).	0. 41	0. 51
				Administrators strive for knowledge to prepare the teachers for the course (a12).	0. 43	0. 47
				Administrators give teachers the opportunity to create networks to develop curricula (a13).	0. 39	0. 49
Approach	0.86	0.55	0.30	Problem solving for curriculum development (a14).	0. 56	0. 86
				New approaches to problem solving (a15).	0. 45	0. 55
				Critical thinking in risk assessment (a16).	0. 61	0. 82

Note.$\chi 2 = 66.11$, df $= 67$, *p*-value$= 0.508$, RMSEA $= 0.00$, GFI $= 0.975$, AGFI $= 0.949$, RMR $= 0.008$, NFI $= 0.99$

variables were between 0.46–0.62 and their reliability (R²) was between 0.51–0.84. The models are consistent with the empirical data based on the statistical values of χ2 = 86.85, df = 67, *p*-value= 0.052, RMSEA = 0.030, GFI = 0.97, AGFI = 0.93, RMR = 0.016, and NFI = 1.00.

The CFA results for the creative learning resources and learning atmosphere development in early childhood education for schools model are shown in Table 5, which shows that the factor loading of the

five main elements and their 14 observed variables are between 0.47–0.66 and their reliability (R²) was between 0.57–0.97. The model corresponds with the empirical data based on the statistical values of χ2 = 58.02, df = 43, *p*-value = 0.063, RMSEA = 0.033, GFI = 0.97, AGFI = 0.94, RMR = 0.018, and NFI = 1.00.

The results of the CFA for creative measurement and evaluation in early childhood education are shown in Table 6, which shows that factor loading values of all five main elements and their 15 observed variables

Table 2

CFA of the Model for Creative Learning Process Development

Process	α	CR	AVE	Observed Variables	loading	r²
Flexibility	0.32	0.30	0.18	Encouraging staff to develop themselves (b1).	0.40	0.57
				Executives adapt to the situation and get feedback from the teacher to supervise a true friend (b2).	0.44	0.65
Vision	0.65	0.45	0.29	Administrators have defined the future of the institution to develop early learning processes (b3).	0.48	0.68
				Executives analyze the premises to determine the clarity of the learning process (b4).	0.59	0.83
Imagination	0.72	0.56	0.24	Management introduced new ideas to develop teachers to process the learning process freely (b5).	0.54	0.68
				Executives bring credible sources to develop teachers with a sense of pride (b6).	0.43	0.52
				Management is friendly with colleagues to create a fun atmosphere (b7).	0.54	0.68
				Implement a clear policy (b8).	0.44	0.60
Motivation	0.80	0.43	0.27	Management is committed to promoting teacher development (b9).	0.54	0.79
				Management is seeking the learning process experience for teachers (b10).	0.50	0.77
Approach	0.78	0.63	0.30	Administrators use problem-solving process based on the context of the institution (b11).	0.55	0.68
				Administrators have a way to find new alternatives to solve problems from the facts (b12).	0.51	0.64
				Administrators are critical in assessing the situation (b13).	0.55	0.73
				Administrators are keen to solve creative problems (b14).	0.58	0.72

Note. χ2 = 40.07, df = 44, p-value = 0.64, RMSEA = 0.00, GFI = 0.98, AGFI = 0.96, RMR = 0.006 and NFI = 0.99

Table 3
CFA of the model for Creative Research Development

Research	α	CR	AVE	Observed Variables	loading	r^2
Flexibility	0.75	0.63	0.29	Administrators promote the development of diverse research (c1).	0.52	0.56
				Teachers, parents, and communities are involved in research, planning, and development (c2).	0.56	0.69
				Teachers are encouraged to develop their own research (c3).	0.48	0.68
				Teachers published their research papers through a network (c4).	0.61	0.73
Vision	0.77	0.63	0.30	Future research is used to improve and clarify the quality of education (c5).	0.55	0.67
				A clear goal is to encourage teachers to have a better understanding of innovation and to solve problems creatively (c6).	0.54	0.77
				Staff is encouraged and motivated to set goals for research development (c7).	0.53	0.73
				Staff seeks ways and means of achieving goals (c8).	0.57	0.73
Imagination	0.88	0.66	0.32	New concepts are freely developed into working ideas (c9).	0.54	0.68
				Administrators are friendly with colleagues which creates a good working atmosphere (c10).	0.57	0.64
				Teachers conduct research to continuously improve their quality of education (c11).	0.58	0.76
				Administrators turn research development policy into practice (c12).	0.58	0.69
Motivation	0.77	0.63	0.29	Teachers are allowed to do research to improve the quality of education (c13).	0.56	0.73
				Administrators are committed to inspiring work (c14).	0.55	0.73
				Administrators give staff the opportunity to participate in research development (c15).	0.50	0.60
				Administrators are eager to support or facilitate successful operations (c16).	0.56	0.71
Approach	0.63	0.61	0.28	The decision-making process is used to solve research problems (c17).	0.52	0.72
				Find alternatives or new approaches to solve problems (c18).	0.50	0.65
				Careful assessment of risk (c19).	0.55	0.79
				Publication of research results to improve the quality of early childhood education in schools through the network (c20).	0.54	0.66

Note. $\chi^2 = 88.81$, df = 92, *p*-value= 0.57, RMSEA = 0.00, GFI = 0.97, AGFI = 0.94, RMR = 0.007 and NFI = 0.997

Table 4

CFA of the Model for Creative Media and Technology Development

Media	α	CR	AVE	Observed Variables	loading	r²
Flexibility	0.61	0.59	0.26	The administration promotes the development of innovative media for teachers (d1).	0.46	0.51
				Opportunities are given for teachers and communities to participate in the planning, production, procurement, and development of modern media (d2).	0.52	0.70
				The administration is open-minded to receive feedback and suggestions from teachers, parents and the community (d3).	0.53	0.70
				Educational institutions are monitoring and evaluating the use of media for use in innovative early childhood technology (d4).	0.52	0.72
Vision	0.63	0.64	0.31	The vision, the future goals, and the development of innovative media and early childhood education technology are clearly defined (d5).	0.55	0.74
				There is a mission to prepare teachers for the use of media used in innovation and education technology (d6).	0.55	0.73
				Staff is encouraged to be motivated and collaborative in setting goals in developing, producing, and developing media (d7).	0.52	0.68
				New ways are sought to keep up with changes in monitoring, and evaluation of media use, innovation, and technology (d8).	0.60	0.82
Imagination	0.61	0.63	0.31	Teachers are encouraged to identify media development goals independently (d9).	0.49	0.70
				Teachers work on the development of innovative media and educational technology with prudence (d10).	0.60	0.74
				The administration is friendly with colleagues and creates an atmosphere in a fun way (d11).	0.53	0.63
				Administrators put policy into concrete action (d12).	0.57	0.73
Motivation	0.70	0.58	0.32	Administrators help in identifying goals for innovative media development (d13).	0.56	0.78
				Administrators provide opportunities for personnel, institutions, organizations, and agencies to participate in the development of the work (d14).	0.54	0.71
				Administrators support or facilitate monitoring, evaluation, and performance appraisal (d15).	0.58	0.80
Approach	0.59	0.51	0.34	Administrators seek knowledge in the decision-making process (d16).	0.54	0.77
				Administrators are critical in assessing the situation in coordinating with the institution is the use of innovative media and educational technology (d17).	0.62	0.84

Note. χ2 = 47.12, df = 55, p-value= 0.77, RMSEA = 0.00, GFI = 0.98, AGFI = 0.95, RMR = 0.005 and NFI = 0.998

Table 5

CFA of the Model for Creative Learning Resources and Learning Atmosphere Development

Resources	α	CR	AVE	Observed Variables	loading	r^2
Flexibility	0.65	0.53	0.28	Administrators promote the development of learning resources and a diverse atmosphere (e1).	0.47	0.57
				Administrators give opportunities to teachers, parents and the local community to become involved in planning and adjusting learning resources, both inside and outside the classroom (e2).	0.52	0.74
				Administrators encourage teachers to develop new knowledge themselves (e3).	0.60	0.85
Vision	0.75	0.59	0.33	Staff is encouraged to analyze the mission statement to help in setting goals in the management of learning resources (e4).	0.66	0.97
				Staff is encouraged to be motivated to target learning resources (e5).	0.55	0.78
				Staff are encouraged to find new ways of developing learning resources (e6).	0.51	0.60
Imagination	0.75	0.52	0.27	Administrators are friendly with colleagues (e7).	0.52	0.74
				Staff is encouraged on their experience to solve problems in developing learning resources (e8).	0.50	0.66
				Staff is encouraged to apply policies to concrete practices (e9).	0.53	0.71
Motivation	0.75	0.59	0.32	The administration provides learning resources that promote child development (e10).	0.52	0.71
				The administration inspires staff to be aware of the development of learning resources (e11).	0.60	0.84
				The administration is committed and eager to support or facilitate the development of learning resources (e12).	0.59	0.77
Approach	0.54	0.43	0.28	The administration is seeking new knowledge and approaches in the decision-making process (e13).	0.56	0.90
				Staff is encouraged to critically assess the situation or risk carefully so that the school has a variety of learning resources and a good atmosphere (e14).	0.49	0.73

Note. $\chi^2 = 31.49$, df = 42, p-value = 0.88, RMSEA = 0.00, GFI = 0.99, AGFI = 0.97, RMR = 0.005, and NFI = 0.998.

Table 6
CFA of the Model for Creative Measurement and Evaluation

Evaluation	α	CR	AVE	Observed Variables	loading	r^2
Flexibility	0.58	0.56	0.30	The administration encourages the development, measurement, and evaluation of diversity (f1).	0.52	0.64
				The administration gives teachers, parents, and communities the opportunity to be involved in the planning, evaluation, and evaluation of children's development as they occur (f2).	0.53	0.71
				Teachers are encouraged to develop themselves in measuring and assessing development (f3).	0.59	0.70
Vision	0.68	0.63	0.36	The administration encourages staff to analyze the situation in the mission setting to set goals for measuring and evaluating early childhood development (f4).	0.59	0.78
				The goal is to develop and evaluate children's development in real life (f5).	0.59	0.74
				The administration seeks new ways of supervising, monitoring, and evaluating the development of teachers (f6).	0.63	0.79
Imagination	0.58	0.58	0.32	The administration uses new concepts from reliable sources to develop guidelines for measuring and evaluating early childhood development (f7).	0.57	0.79
				The administration creates a work environment for measuring and evaluating development in a fun way (f8).	0.59	0.68
				The administration can apply knowledge from experience to solve problems in developing, measuring, and evaluating development (f9).	0.53	0.67
Motivation	0.68	0.57	0.31	The administration advises how to measure and evaluate early childhood development (f10).	0.57	0.75
				The administration is committed to seeking experience and knowledge to prepare teachers for the implementation and evaluation of early childhood development (f11).	0.53	0.63
				The administration facilitates operations by allowing the staff to participate in the development of the work (f12).	0.56	0.71
Approach	0.58	0.62	0.35	Pursuit of knowledge in early childhood measurement and evaluation was used in the decision-making process (f13).	0.60	0.83
				The administration has a new approach to developing work, measuring and evaluating early childhood development (f14).	0.63	0.89
				The administration encourages staff in critical thinking, skill and flair in assessing situations in solving problems (f15).	0.54	0.75

Note. $\chi^2 = 40.47$, df = 50, p-value = 0.83, RMSEA = 0.00, GFI = 0.98, AGFI = 0.96, RMR = 0.005 and NFI = 0.99.

were between 0.52--0.63 and their reliability (R^2) was between 0.63–0.89. Model reliability was further based on the statistical values of $\chi2 = 73.14$, df $= 56$, p-value $= 0.062$, RMSEA $= 0.031$, GFI $= 0.97$, AGFI $= 0.94$, RMR $= 0.016$, and NFI $= 1.00$.

Table 7 shows the average results from the study concerning Thai administrators' creative administration of early childhood education to be at the highest level ($= 4.53$, S.D. $= 0.63$). Individually, development of early childhood learning process was ranked highest ($= 4.59$, S.D. $= 0.66$). This was followed by the development of early childhood education curriculum ($= 4.57$, S.D. $= 0.59$) and the development of learning resources and atmosphere of early childhood education ($= 4.56$, S.D. $= 0.59$). Furthermore, the development of innovative media and early childhood creative technology and research for improving the quality of early childhood education were ranked 4th and 5th, respectively. Finally, early assessment of creative development was judged to be the least important.

Discussion

This research studied the confirmation factors for the creative academic administration of early childhood education and determined that the variables were well supported, both from the analysis and other related studies. Ranked in importance were 1) creative measurement and evaluation (0.55), 2) creative resources and learning atmosphere development (0.50), 3) creative media and technology development (0.50), 4) creative research development (0.47), 5) creative learning process development (0.44), and 6) creative curriculum development at the early childhood level (0.34). However, according to Danielson's Framework for Teaching, there are 68 performance dimensions within four broad domains of planning and preparation, creating an environment for learning, teaching for learning, and professionalism (Danielson, 2007). As such, this study was only able to focus on the six presented in the study. We synthesize these as follows:

Creative Measurement and Evaluation at the Early Childhood Level

The study's findings were also in agreement with the National Research Council (2008), which stated that measuring quality in the early childhood environment serves a number of purposes. These include teacher professional development, as well as calling administrators' or teachers' attention to their own behavior and practices that might promote positive child outcomes. Classroom observation measures also help in teacher/administrator evaluation strategies (Organisation of Economic Co-operation and

Table 7

Descriptive Statistics for the Creative Academic Administration in Early Childhood Education

Early Childhood Creative Management	n = 324		Interpretation	Rank
	$\bar{X}$	S.D.		
Development of early childhood education curriculum	4.57	0.59	most	2
Development of early childhood learning process.	4.59	0.66	most	1
Research for improving the quality of early childhood education.	4.52	0.65	most	5
Development of innovative media and early childhood creative technology.	4.52	0.64	most	4
Development of learning resources and atmosphere of early childhood education.	4.56	0.58	most	3
Early assessment of creative development.	4.43	0.66	much	6
Average	4.53	0.63	most	

Development [OECD], 2009b), with raising teaching performance the most crucial element in gaining substantial student learning performance (OECD, 2005).

Creative Resources and Learning Atmosphere Development

The findings from the study concluded that administrators need to deeply understand the curricula they employed in their educational institutions in order to encourage instructors to use teaching innovations while acting as good academic role models. This is consistent with Hammer, Berger, Beardsley, and Easton (2003), which indicated that mentoring and interaction with role models is essential for appropriate professional socialization.

Furthermore, developing an environment that is encouraging and motivating will give students more responsibility for their own learning. According to the OECD (2009a), a classroom's disciplinary climate is associated with student performance. Additionally, self-efficacy is an important measure of student productivity and effectiveness.

Creative Media and Technology Development

In today's learning environment, students and teachers engage and interact to learn new skills using a variety of platforms, including learning management systems (LMSs), digital media such as smartphones, social media (Facebook, Instagram, Line, etc.), and the Internet (Kasim & Khalid, 2016; Yuktirat, Sindhuphak, & Kiddee, 2018). Also, Mott and Wiley (2009) stated that teaching through the use of the Internet, of which content management systems and learning management systems are parts, generally helps teachers facilitate better their administrative tasks. Internet-based teaching, combined with a classroom LMS, offers greater flexibility in when and where classes are done and assignments and homework are reviewed. Organizing and managing study tasks are easier through the ability to replay and revisit teaching materials, which helps facilitate flipped classrooms (Henderson, Selwyn, & Aston, 2017). Administration is also becoming easier as learning analytics (LA) capabilities are becoming embedded within classroom LMSs (Marks, AL-Ali, & Rietsema, 2016)*, with one s*pecific goal of an LMS being stated to be the improvement of learning outcomes (Nueva & Calica, 2018).

Furthermore, creativity is the ability to generate novel and useful ideas, while innovation is the successful implementation of those ideas. Creativity for centuries has mostly been judged by "experts" of the time, which is one reason creative genius from Johann Sebastian Bach to Vincent van Gogh to Franz Kafka failed to achieve fame during their lifetimes (Chamorro-Premuzic, 2015). Technology, however, opens this judgment concerning creativity to a global audience, instead of a few selected experts with the Internet and platforms such as YouTube lifting the wall between creators and the public, making creativity more meritocratic. Therefore, creative learning takes place both inside and outside the classroom and has no limits as to the time or location.

Creative Research Development

There are many levels of creativity. These include an individual level, a group level, and an organizational level (Anderson, Potočnik, & Zhou, 2014; Mumford, 2011; Pirola-Merlo & Mann, 2004; Xu, 2016). In an institution, creativity on the individual level means that individual employees are capable of finding creative and unique ways to develop their work through inherent characteristics such as intelligence and giftedness (Besançon, 2013), or through acquired skills such as problem-solving. These acquired characteristics and skills can be taught and developed while being aided in the process by the inherent traits of intelligence and giftedness.

As for creativity on a group level, this is when individuals in fixed groups collaborate to apply ideas to improve the performance of the collective group (Taggar, 2002). Additionally, according to Anderson et al. (2014), three major elements are contributing to individual or small team creativity. These include expertise, creative-thinking skill, and intrinsic motivation.

Creativity on the organizational level concerns organizations with high-performance norms where the workflow is optimal and creative through the collective efforts of both individuals and groups. Creativity is also a component that enhances organizational ability to keep their competitive advantage (Parjanen, 2012).

Twenty-first-century skills are said to be essential for graduates to market themselves and flourish in the globalized economies of today (Brende, 2015; Reeve, 2016). Furthermore, instilling the capability to act

creatively and cooperatively, to be able to capitalize on the ideas of one another, and generate new ones constructively, is necessary in education (Ah-Nam & Osman, 2017).

Creativity can also be differentiated between levels pertinent to management. At the technical level, creativity is related to production and services conducted by humans, meaning the production of creative goods and services. Creativity at the administrative level is directly related to matters of organizational structure and the administrative process within the organization, and indirectly related to the basic activities of the organization (Norris, 1996).

Creative Learning Process Development

O'Brien (2012) indicated that there are three related tasks in teaching creativity. These include encouraging, identifying, and fostering. Sawyer (2012) reviewed research on building creativity in the classroom and concluded that teaching behaviors normally associated with creativity included classroom openness in which collaboration and the cross-fertilization of ideas were valued (Gore, Griffiths, & Ladwig, 2004; Lingard, Hayes, & Mills, 2003). Further elements included surprise cultivation, trust, and a safe environment for risk-taking. Additionally, student self-efficacy (i.e., self-judgments of creative ability) was included (Beghetto, 2006), and resisting peer pressure. Problem-finding, idea generation, questioning of assumptions, and imagination of alternative perspectives and viewpoints were also main ideas.

Creative Curriculum Development

The importance of creative curriculum development was confirmed by this study, which is consistent with the findings of Jacobs (2009), who stated that curriculum is important to educational management as it establishes learners' goals and is the heart of education. Other curriculum studies researchers, such as Taba (1962), that stated curriculum development should be "a plan for learning" (p. 266), which according to Sayler, Alexander, and Lewis (1981) is a plan for providing sets of learning opportunities for persons to be educated.

Also, in Korea, Park et al. (2010) identified knowledge, cognitive function, and value/attitude as components for improving creative problem-solving ability. Ornstein and Hunkins (2009) saw curriculum construction as a tool for citizenship and economic

gain. With over 120 identified definitions of curriculum (Portelli, 1987), saying precisely what curriculum development is, however, can be a lofty goal.

Conclusion

For the cultivation of our children to become adept at surviving in and transforming society for the better, it is crucial to instill within them creativity and creative skills, which starts from the creative administration of early childhood education to ensure they acquire such traits.

For schools to succeed in creative academic management, relevant agencies and stakeholders must consider the management factors that are responsible for creativity: development of creative school curricula, development of creative learning processes, and the development of quality learning resources and creative atmospheres. Recognizing the value of these factors and the effective management thereof will result in higher academic quality. Administrators should apply the results of this research in developing creative approaches to and processes of academic administration at all levels to improve and develop the quality of education.

Conflict of interest:

None.

Ethical clearance:

The institution approved the study.

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